

عنوان مقاله:

Elastic Buckling Analysis of Ring and Stringer-stiffened Cylindrical Shells under General Pressure and Axial Compression via the Ritz Method

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خلاصه مقاله:

Elastic stability of ring and stringer-stiffened cylindrical shells under axial, internal and external pressures is studied using Ritz method. The stiffeners are rings, stringers and their different arrangements at the inner and outer surfaces of the shell. Critical buckling loads are obtained using Ritz method. It has been found that the cylindrical shells with outside rings are more stable than those with inside rings under axial compressive loading. The critical buckling load for inside rings is reducing by increasing the eccentricity of the rings, while for outside ring stiffeners the magnitude of eccentricity does not affect the critical buckling load. It has also been found that the shells with inside stringers are more stable than those with outside one. Moreover, the stability of cylindrical shells under internal and external pressures is almost the same for inside and outside arrangements of stringers. The results are verified by comparing with the results of Singer at the same loading and boundary conditions.

کلمات کلیدی:

Buckling analysis, Stiffened cylindrical shells, Ritz method

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